



ENSR International

2 Technology Park Drive
Westford, MA 01886-3140
(978) 589-3000
FAX (978) 589-3100
www.ensr.com

July 18, 2004

Mr. Roland Bartl, AICP, Town Planner
Acton Planning Department
472 Main Street
Acton, MA 01720

**Re: Results of Peer Review Findings
Review Services Related to Proposed Quail Ridge Country Club
Acton, Massachusetts**

Dear Mr. Bartl:

Thank you for inviting ENSR to again assist the Planning Board in their review of the proposed eighteen-hole Quail Ridge Country Club golf course. We have reviewed material submitted by the applicant (NorthWest Development LLC) to the Planning Board in response to your requests and as a result of the meetings we held this past winter reviewing project status and compliance with the permit conditions.

There are a few items that you asked me to concentrate on, primarily dealing with the IPM program, water supply impacts, and water quality.

• **Audubon International Program**

I also understood that the Bronze Level of membership in the Audubon International (AI) Signature Program meant that AI provided annual audits of operations with respect to the proposed IPM program. I believe that this was reiterated several times during the hearing process, and I included this understanding in my April 11, 2002 summary letter to the Board following the hearings:

"As we stated during the Hearing, the main advantage to requiring the course to enter the Audubon International Signature Cooperative Sanctuary Program is the follow-up review that this program apparently provides. Due to the rigorous permitting of golf courses in Massachusetts, most of the other elements of the program (such as the preparation of a Natural Resource Management Plan) are satisfied through the permitting process. Our investigations indicate that entry of the course into the Basic (Bronze) Membership in the Audubon International Signature Cooperative Sanctuary Program appears appropriate. The decision to accept the permitting documents as the basis for membership at this level is, of course, up to Audubon International."

My understanding is that the AI "Signature" and "Sanctuary" Programs are very different things. The following is a brief summary of the two programs from AI itself:





The Audubon Cooperative Sanctuary System (ACSS) was developed by the Audubon Society of New York in 1991. This program is now under the Direction of Audubon International. The goal of the ACSS is to educate and encourage landowners and land managers to become actively involved in protecting and enhancing wildlife habitats and conserving and sustaining natural resources on their own properties. Audubon Cooperative Sanctuary Programs (ACSP's) designed for golf courses, schools, businesses, and backyards provide conservation assistance specific to the unique location, resources, and needs of each site.

Audubon Signature Program provides comprehensive environmental planning assistance to landowners around the world with projects in the design and development stages. Audubon International staff works with owners, architects, consultants, and managers from the design stages through construction. Once completed, Audubon staff helps to establish a maintenance program that focuses on sustainable natural resource management. The Signature Program focuses on wildlife conservation and habitat enhancement, water quality management, waste reduction and management, energy efficiency, and water conservation. Projects that receive Signature Status are valuable demonstration sites for sustainable resource management.

As can be seen in the definitions, the Sanctuary Program is an educational support program and the Signature program is a technical support program. They do not appear to be interchangeable. I think the Planning Board needs to decide whether they have a high enough level of comfort with the proposed self-reporting in the IPM program to elect to relieve the Applicant of the requirements of the Special Permit.

- **Water Supply Impacts**

Since March we have met on several occasions with both Mr. Peabody and his consultants regarding the potential effects of irrigation withdrawals on the regional groundwater table. After reviewing the data provided in the original Water Management Act (WMA) Water Withdrawal Application with Epsilon, they wrote a letter to you on May 12th summarizing the results of the tests and the ongoing monitoring of the wells. As you noted, there is a typo in the second paragraph regarding the testing of the wells. The WMA documents show that Wells BE-2 and BE-5 were tested in January 2002 and that well BE-7 was tested in September 2002. Well BE-7 is proposed as the sole irrigation supply well, and it does not appear to have an effect on off-site wells to the north and west of the golf course site. We further understand that pumping well BE-7 had no effect on the Conant Well (Acton Water District supply well), the well in closest proximity to BE-7. We understand that well BE-5 is to be used as an emergency back up only in the event of a failure of the well BE-7 pump. Further, the letter from Epsilon reflects the agreement to use well BE-1 as an on-site monitoring well should BE-5 be used. The Planning Board should consider modifying the Special Permit to reflect the use of BE-7 as the sole supply, BE-5 as a back-up, no use of BE-2 at any time for water supply, and the use of BE-1 as a monitoring well only. The Epsilon letter further states that if while pumping well BE-5, well BE-1 draws down 10 feet or more, then the pumping of well BE-5 will cease. The Planning Board should require continuous monitoring of well BE-1 should well BE-5 be put into use, and that pumping of BE-5 could not begin again until well BE-1 recovers to its pre-pumping static water level following a 10 foot drawdown. As Mr. Peabody suggests, the Special Permit should also refer to the ACO commitments regarding water use and monitoring.





- **Water Quality Monitoring Program**

During the Hearing process we met with the Applicant's consultants and modified the originally proposed water quality-monitoring program. I believe that the summary from my April 11, 2002 letter to the Board reflected the agreed-upon program:

"The Applicant has prepared a Water Quality Monitoring Plan. This plan includes 8 surface water (5 in the streams and 3 in the irrigation ponds) and 3 groundwater-monitoring points. The spatial coverage of the water quality monitoring stations appears adequate. The Applicant proposes to monitor all of the points prior to any construction beginning in order to establish baseline conditions. Because this sampling would precede their construction, the 3 stations in the irrigation ponds would not be monitored during this round. The Applicant proposes to sample each station for Total Kjeldahl Nitrogen (TKN), Nitrite, Nitrate, pesticides (EPA 508) and herbicides (EPA 515.1). The surface water stations would also be analyzed for Total Phosphorus. This list of analytes is acceptable for the baseline conditions analysis."

Our understanding is that the locations and dimensions of the amenity ponds has changed during the construction of the course (in part due to Water Withdrawal Permitting requirements). The 5 surface water stations and 3 groundwater stations remain as part of the monitoring plan. Samples were taken on 3/26/03 and 7/22/03. It is unclear if additional samples have been taken from all of the monitoring stations at the frequency ENSR recommended during the Special Permit process. The results of the initial sampling show no pesticides or herbicides, low nitrogen levels, and low to moderate phosphorus levels except in the early groundwater samples. This could be due to well development and appears to have dropped off in the later sample.

The Applicant should continue to monitor surface and groundwater for the constituents listed at the frequencies agreed upon in the Special Permit. As we summarized in our report to the Board in April 2002:

- First, there should be testing at the site during the construction process while earthwork is underway. Clearing, grubbing, and initial earthwork on sites often liberates compounds that are either brought into solution or adsorbed to soil particles that pass through erosion control measures. We recommend that sampling occur quarterly for the first two years following the start of construction so that construction-related water quality issues can be caught and addressed. These sampling events should concentrate on the surface water stations and should target nutrients (Nitrate-Nitrogen and Total Phosphorus). Monitoring of the 3 groundwater stations for Nitrate, pesticides, and herbicides would further help establish baseline conditions to which future results could be compared.
- Second, testing twice a year (late Spring and mid-Fall) for all analytes is recommended during the operational phase of the golf course. A number of turf pests appear in the Spring and the chemicals used to treat these outbreaks need to be tested for in the season that they are applied. This twice-a-year regimen should be maintained each year because different chemicals may have to be used in different years and it is anticipated that the IPM program will require additions to, and deletions from, the pesticide list approved for use at





the course. The Applicant's proposal to perform an additional round of sampling in mid-summer for nutrients is sound and should be adopted.

- Third, the re-sampling and remedial action plan proposed falls short of the standard of recently-permitted courses. ENSR recommends that the Planning Board review, and consider adoption of, the Conservation Commission's Special Conditions that deal with these issues (numbers 77 to 80 of the attached document). Simply ceasing chemical applications after a confirmed contamination event is not sufficient.

In summary, we feel that the irrigation water supply and effect issues have been adequately addressed in both the MADEP ACO process and in our reviews. Attention should be paid to performing the water quality tests on the correct timetable and at the appropriate locations. To-date the results of the tests do not indicate water quality problems. It appears that the peer reviews originally proposed to be performed by Audubon International will not take place. At this point we have not been made aware of any proposed alternative to the AI review process.

We thank the Planning Board for this opportunity to serve the Town of Acton. If you or your staff have any questions about the reviews discussed above please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael J. Toohill", with a stylized flourish at the end.

Michael J. Toohill
Project Manager



QUAIL RIDGE COUNTRY CLUB - CONS COM GENERAL SPECIAL CONDITIONS (continued)

75. Accidental spills of fuel, lubricant, equipment fluids, or any other hazardous or special waste shall be contained and cleaned up in accordance with the Massachusetts Contingency Plan. All such spills shall be reported to the Commission within 48 hours of occurrence. This condition shall run in perpetuity and applies to construction, maintenance, and operations on the site.

76. If there is to be a composting area related to the golf course operation located on the site and within 100 feet of Wetlands Resource Areas, its location and design shall be submitted to the Commission for approval. This condition shall run in perpetuity with the property.

Water Quality Monitoring



77. Groundwater monitoring wells must be installed and operational prior to site grading. Clearing, as required to access the monitoring well location, is allowed.

- a) Monitoring wells shall be installed via hollow-stemmed auger technique, and be constructed of two-inch diameter, schedule 40PVC.
- b) Monitoring wells will be established with five to ten feet of slotted well screen (100 slot) situated to intercept the groundwater surface. Wells will be backfilled with clean filter sand and a bentonite seal directly below the ground surface.
- c) Wells will be installed with a minimum of disturbance, all drill cuttings removed and disposed of in a secure location outside of the Buffer Zone, and all areas of soil disturbance covered with mulch.
- d) The first round of groundwater testing shall be done before any construction commences.



78. The Applicant shall prepare and submit a surface and groundwater quality monitoring plan for the Commission's review and approval prior to the commencement of any construction activities (including clearing) on the site. This plan shall include surface water stations along Nagog and Wills Hole Brooks, and groundwater wells (piezometers or driven well-points) established down-gradient of several of the tees and greens. The golf course wells shall be shallow groundwater wells established in overburden and constructed per MADEP groundwater monitoring well installation criteria. Background (upgradient) wells and surface water stations shall also be included in the monitoring plan. The surface water and groundwater stations shall be tested prior to site clearing and construction of the golf course, quarterly for the first two years (during and following construction), and at least twice annually thereafter during operation of the golf course. Testing shall occur during the late spring and again in the late fall following the cessation of chemical applications. One additional sampling of nitrogen and phosphorus will take place annually during the summer irrigation season. The water samples shall be taken in accordance with Standard Methods for the Examination of Water and Wastewater and analyzed at a state-certified laboratory. The results shall be forwarded to the Conservation Commission and Board of Health upon receipt. Samples shall be analyzed for all chemical compounds used on the course, including but not limited to nitrate-nitrogen, total phosphorus, and pesticides. Results shall be compared to relevant regulatory standards (MCLs from the MADEP or USEPA)

where they exist, or to method detection limits (MDLs) for chemicals that have no established regulatory standard.



79. As part of the ground and surface water quality-monitoring program the Applicant shall prepare a remedial response plan. If pesticides above the relevant MCLs or MDLs, or Nitrate in excess of drinking water standards are encountered in any of the samples, a management response plan will be enacted. Depending upon the constituent and action levels encountered, this plan should include:

- a) Notification to the Commission that an exceedence has been encountered,
- b) cessation of all chemical applications on the course,
- c) repeat sampling for the suspected contamination at the sampling point where it was first encountered,
- d) additional monitoring station installation to characterize the extent of contamination,
- e) design and implementation of a remediation response.
- f) These activities shall take place under the auspices of a Licensed Site Professional and be performed in accordance with the Massachusetts Contingency Plan and the regulations of the Department of Environmental Protection. The remediation response that is required would have to be tailored to the levels and types of contamination and be performed in accordance with MCP guidance.



80. In addition to other reporting requirements of this Order, the Applicant shall promptly notify the Commission in writing of any observed or detected change in water quality that may adversely affect the interests protected by the Act or the By-law. Thereafter, the Applicant shall consult with the Commission to determine appropriate corrective measures including, but not limited to: reduction in application frequency or quantity, or reduction in concentrations of active ingredients in or other changes in formulations, of applied fertilizers, pesticides and fungicides and herbicides; other changes in operation and management of the premises; and/or performance of additional investigations. The Applicant shall thereafter implement the recommended corrective measures and report to the Commission on their implementation. This condition is perpetual and shall survive this Order of Conditions.

Integrated Pest Management/Chemicals and Fertilizers

81. The goal of the Applicant and the Commission in the management of the project is to use an Integrated Pest Management (IPM) approach to golf course management. Toward that end, as technology develops, the Applicant shall consider new commercially available feasible synthetic and "organic" alternatives to existing chemicals.

82. The Applicant shall only hire a qualified Superintendent for the Golf Course who is a Licensed Pesticide Applicator and is state certified/IPM qualified. The Superintendent shall be on-site during both the construction and operational phases of the golf course.